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10/775,744

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EXAMINER

MAHMOOD, REZWANUL

ART UNIT

PAPER NUMBER

2164

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/775,744

**Applicant(s)**

BILLOCK ET AL.

**Examiner**

REZWANUL MAHMOOD

**Art Unit**

2164

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-9 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) 10-21 and 29-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-9 and 22-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This action is in response to the communication filed on February 27, 2008.  
Claims 2-9 and 22-28 are pending in this office action.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 2 - 9 and 22 - 28 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Objections***

Claims 5 and 22-25 are objected to because of the following informalities:

In claim 5 line 2, the phrase "comprises" should be "comprises:". In claim 22 line 1, the phrase "A method" should be "A computer-implemented method". In claim 23 lines 2 and 8, the phrase "comprises" should be "comprises:". In claim 24 line 3, the phrase "comprises" should be "comprises:". In claim 25 lines 2, the phrase "comprises" should be "comprises:". Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 - 9 and 22 - 28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ryu (US Patent 5,519,861) in view of Takano (US Patent 6,279,021) and in further view of Harel (US Patent 6,505,190).

With respect to claim 4, Ryu discloses an apparatus for monitoring time series, comprising:

storing received data points of a corresponding time series (Ryu: Column 2, lines 44-67; Column 3, lines 1-37);

means for receiving data points of one or more time series and storing the received data points (Ryu: Column 2, lines 44-67; Column 3, lines 1-37);

However, Ryu does not explicitly disclose:

storing time series data in one or more registers;

The Takano reference, however, discloses storing time series data in registers (Takano: Column 12, lines 20-25).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the teachings of Ryu with the teachings of Takano to store corresponding time series data in corresponding registers to provide a digital filter that is capable of executing data separation and synthesis (Takano: Column 5, lines 10-12).

Ryu in view of Takano discloses receiving a persistent query (Ryu: Column 1, lines 62-67; Column 2, lines 1-2; Here the user request has an event condition and a payload specification, which matches with the definition of a persistent query in page 3 of the applicant's specification).

However, Ryu and Takano do not explicitly disclose:

means for receiving query strings representing queries;

means for compiling the received query strings;

The Harel reference, however, discloses receiving a query and compiling the query with other queries into a set of unique query terms (Harel: Column 1, lines 7-10; Column 12, lines 26-29).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the teachings of Ryu and Takano with the teachings of Harel to compile a received query strings into persistent query for querying documents against persistent queries (Harel: Column 1, lines 7-8).

Ryu in view of Takano and in further view of Harel discloses:

at least one said persistent query, each defining a query represented by received said query strings, each persistent query being a function of the time series of corresponding one or more trigger registers of one or more registers (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Figure 1; Figure 4; Takano: Column 12, lines 20-25).

means, responsive of storing of a received data point in a trigger register, for evaluating each persistent query corresponding to the trigger register (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Figure 1; Figure 4; Takano: Column 12, lines 20-25); and

means for outputting a payload of each evaluated persistent query whose event condition has a first value (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67;

Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 5, Ryu in view of Takano and in further view of Harel discloses the apparatus of claim 4, wherein:

at least one register comprises

one or more windows each for maintaining statistics for a corresponding subset of the register's corresponding time series (Ryu: Column 2, lines 44-67; Column 3, lines 1-37; Figure 1; Figure 4; Takano: Column 12, lines 20-25); and

at least one persistent query is a function of one or more windows of the corresponding one or more trigger registers (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 6, Ryu in view of Takano and in further view of Harel discloses the apparatus of claim 5 wherein:

each persistent query defines an event condition and a payload specification of the defined query, where at least one of the event condition and the payload specification is a function of the time series of the corresponding one or more trigger registers (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 2, Ryu in view of Takano and in further view of Harel discloses the apparatus as recited in claim 5 further comprising:

means for dynamic management of the windows (Ryu: Column 2, lines 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7).

With respect to claim 3, Ryu in view of Takano and in further view of Harel discloses the apparatus as recited in claim 2, further comprising:

means for using historical values in present said windows to help populate inserted said windows (Ryu: Column 2, lines 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7).

With respect to claim 7, Ryu in view of Takano and in further view of Harel discloses the apparatus of claim 6 wherein:

at least one of the event condition and the payload specification of at least one persistent query is a function of the statistics maintained by at least one window of at least one of the corresponding one or more trigger registers (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 8, Ryu in view of Takano and in further view of Harel discloses the apparatus of claim 5 comprising:

means for performing online computation of the statistics (Ryu: Column 1, lines

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62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 9, Ryu in view of Takano and in further view of Harel discloses the apparatus of claim 4 comprising:

means for dynamic management of persistent queries (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 22, Ryu in view of Takano and in further view of Harel discloses a method of monitoring time series, comprising:

receiving query strings representing a query (Harel: Column 12, lines 26-29);

compiling from the received strings a persistent query defining the represented query as a function of one or more time series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Harel: Column 12, lines 26-29);

receiving data points of the one or more time series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25);

storing the received data points each in a register for storing received data points of a corresponding one or the one or more time series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1;



Figures 4-7; Takano: Column 12, lines 20-25);

in response to storing of a received data point in a register, using contents of the register to evaluate each persistent query that is a function of the register's corresponding time series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25); and

outputting a payload of each evaluated persistent query whose even condition has a first value (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7).

With respect to claim 23, Ryu in view of Takano and in further view of Harel discloses the method of claim 22 wherein:

storing the received data points comprises

updating statistics of any windows of the register that store the received data points to account for the stored data points, wherein at least one register comprises one or more said windows each for maintaining the statistics for a corresponding subset of the register's corresponding time series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25); and

using contents of the register comprises

using contents of at least one or the one or more windows of the register to evaluate each persistent query that is a function of the register's corresponding time

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series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 24, Ryu in view of Takano and in further view of Harel discloses the method of claim 23 wherein:

using contents of at least one or the one or more windows comprises

using contents of the at least one window to evaluate at least one of an event condition and a payload specification of the persistent query, where the at least one of the event condition and the payload specification is a function of the register's corresponding time series (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 25, Ryu in view of Takano and in further view of Harel discloses the method of claim 23 wherein:

updating statistics comprises

performing online computation of the statistics (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 26, Ryu in view of Takano and in further view of Harel discloses the method of claim 22 further comprising:

dynamically managing the persistent queries (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 27, Ryu in view of Takano and in further view of Harel discloses the method of claim 23 further comprising:

dynamically managing the windows (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

With respect to claim 28, Ryu in view of Takano and in further view of Harel discloses the method of claim 27 further comprising:

using historical values in present said windows to help populate inserted said windows (Ryu: Column 1, lines 62-67; Column 2, lines 1-2 and 44-67; Column 3, lines 1-37; Column 5, lines 38-63; Figure 1; Figures 4-7; Takano: Column 12, lines 20-25).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Mitra reference (US Patent 6,654,485) teaches about monitoring time series. The Becker reference (US Patent 5,462,438) teaches about displaying multiple times series. The Trayford reference (US Publication 2004/0038671) teaches about analyzing time series and historical values.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REZWANUL MAHMOOD whose telephone number is (571)272-5625. The examiner can normally be reached on M - F 10 A.M. - 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571)272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. M./  
Examiner, Art Unit 2164

July 7, 2008

/Charles Rones/  
Supervisory Patent Examiner, Art Unit 2164